

REMARKS

Initially, in the Office Action dated March 8, 2005, the Examiner has rejected claims 1-3, 6-8 and 24 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,405,284 (Bridge). Claims 4, 5, 9 and 10 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Bridge in view of U.S. Patent No. 5,564,116 (Arai et al.).

By the present response, Applicants have canceled claims 11-23 without disclaimer. Moreover, Applicants have amended claims 1-3, 6-8 and 24 to further clarify the invention. Claims 1-10 and 24 remain pending in the present application.

Information Disclosure Statement

The Examiner indicates that the Information Disclosure Statement filed November 16, 2001 fails to comply with the provisions of 37 C.F.R. §1.97, 1.98, and MPEP §609. Applicants have submitted concurrently with this response an appropriate IDS that conforms with all requirements.

35 U.S.C. §102 Rejections

Claims 1-3, 6-8 and 24 have been rejected under 35 U.S.C. §102(e) as being anticipated by Bridge. Applicants respectfully traverse these rejections.

Bridge discloses managing storage from multiple data storage devices. This system and method discloses providing improved load balancing, reduction or elimination of fragmentation, and efficient changes in hardware configurations. I/O load and data are spread relatively evenly across many data storage devices in the

storage system. Dynamic reorganization can be performed for the data stored on the data storage devices.

Regarding claims 1, 6 and 24, Applicants submit that Bridge does not disclose or suggest the limitations in the combination of each of these claims of, inter alia, executing both of the data processing in the plurality of storages and the data rebalance, determining to move data among the plurality of storages and the storage added by the acceptance section based on the copy position information, or confirming presence or absence of an area for storing information for identification of additional storage for storing table data and information indicative of "in rebalance operation" during which data is moved from a plurality of storages to the additional storage in accordance with a predetermined division rule of table data to be stored among the plurality of storages and the additional storage, and in the absence of the area, securing the area when data processing in the plurality of storages is executed. The Examiner asserts that Bridge discloses executing data processing and the data rebalance at col. 21, lines 20-61. However, these portions of Bridge merely disclose details regarding the read/write I/O operations, including the maintaining of pointer data for logical volumes, the parameters utilized, and the process actions performed to execute I/O operations. This is not executing both of the data processing in the plurality of storages and the data rebalance, as recited in the claims of the present application. These portions of Bridge do not disclose or suggest executing at the same time both the data processing and the data rebalance. These portions of Bridge merely relate to the details of I/O operations. Moreover, these portions of

Bridge do not disclose or suggest determining to move data among the plurality of storages and the storage added based on copy position information. According to the present invention, even during data rebalance execution of table data, acceptance and execution of a database processing request can be performed (e.g., search, update, delete or insert), concurrently with the rebalance execution, thereby providing improved operability and performance of the database. This is not disclosed nor suggested in Bridge.

Moreover, the Examiner asserts that Bridge discloses after the time of starting the program, confirming presence or absence of an area for storing information for identification of an additional storage for storing table data and information indicative of "and rebalance operation", at col. 4, line 64 – col. 5, line 14. However, these portions of Bridge merely disclose details regarding migration of data to another or newly added disk drive and that migration can be performed dynamically or automatically based on recognizing a hardware change such as the addition or removal of a disk. This is not confirming presence or absence of an area for storing information for identification of an additional storage for storing table data and information indicative of "in rebalance operation", as recited in the claims of the present application. These portions of Bridge merely relate to the migration of data to a new disk drive. These portions do not disclose or suggest an area for storing information for identification of an additional storage for storing table data. Further, these portions of Bridge do not disclose or suggest an "in rebalance operation" during which data is moved to additional storage in addition with a predetermined

division rule of table data to be stored among the plurality of storages and the additional storage. These limitations are neither disclosed nor suggested by Bridge.

Regarding claims 2, 3, 7 and 8, Applicants submit that these claims are dependent on one of independent claims 1 and 6 and, therefore, are patentable at least for the same reasons noted previously regarding these independent claims. For example, Applicants submit that Bridge does not disclose or suggest a rebalance flag set when the data rebalance is being executed and indicating that the plurality of storages are being rebalanced due to addition or disconnection of the plurality of storages, or referring to the rebalance flag and reflecting data update during the storages subject to the data rebalance.

Accordingly, Applicants submit that Bridge does not disclose or suggest the limitations in the combination of each of claims 1-3, 6-8 and 24 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

35 U.S.C. §103 Rejections

Claims 4, 5, 9 and 10 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Bridge in view of Arai et al. Applicants respectfully traverse these rejections.

Arai et al. discloses a storage unit system that includes a control apparatus having a unit for reading memory data from a plurality of storage units before increase into a memory of the control apparatus, a preparing unit for preparing parity data newly from the memory data read in the memory, a rearrangement unit for

dispersing transfer data from a processor read in the memory and the newly prepared parity data to be written into a plurality of storage units after the increase to perform arrangement of data, a memory unit for storing a write position on the way of the rearrangement of data, a comparison unit for comparing an access position for an access request from the processor with the write position, and a determining unit for determining a data dispersed pattern used in a data access from the processor on the basis of a comparison result of the comparison unit, whereby the storage unit can be increased individually with a unit of one storage unit and dynamically without stop of the system.

Applicants submit that claims 4, 5, 9 and 10 are dependent on one of independent claims 1 and 6 and, therefore, are patentable at least for the same reasons noted previously regarding these independent claims. Applicants submit that Arai et al. does not overcome the substantial defects noted previously regarding Bridge. For example, Applicants submit that none of the cited references disclose or suggest means, in response to a rebalance request of data to be rebalanced in a storage added according to said addition request, for adding data position information to data before subjected to the rebalance execution by said data rebalance request in said plurality of storages, and means for deleting the data added with the data position information and before subjected to execution of the rebalance execution after the execution of the rebalance execution by the rebalance request, or means, in response to a rebalance request of data to be rebalanced in a storage added according to said addition request, for adding data position

information to data before subjected to the rebalance execution by said data rebalance request in said plurality of storages, and means, in response to said data processing request of update or delete to data in said plurality of storages, for deleting data corresponding to the data to be updated or deleted but added with said data position information after the rebalance execution.

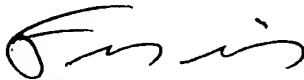
Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 4, 5, 9 and 10 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

In view of the foregoing amendments and remarks, Applicants submit that claims 1-10 and 24 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. 500.40817X00).

Respectfully submitted,

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